

## CLAIMS

What is claimed is:

1. An isolated DNA sequence encoding a CD30-L polypeptide, wherein said CD30-L comprises an amino acid sequence selected from the group consisting of amino acids 1-220 of SEQ ID NO:19, amino acids 1-215 of SEQ ID NO:23, amino acids 1-239 of SEQ ID NO:6, and amino acids 1-234 of SEQ ID NO:8.
2. An isolated DNA sequence encoding a soluble CD30-L polypeptide capable of binding CD30, wherein said CD30-L comprises an amino acid sequence selected from the group consisting of amino acids 49-220 of SEQ ID NO:19 and amino acids z-215 of SEQ ID NO:23, wherein z is selected from the group consisting of 44, 45, 46, and 47.
3. An isolated DNA comprising a DNA sequence that encodes an Fc polypeptide derived from an antibody, fused directly or through a peptide linker-encoding sequence to the 5' end of a soluble CD30-L-encoding DNA according to claim 2.
4. A DNA sequence according to claim 2, wherein said DNA sequence comprises a nucleotide sequence selected from the group consisting of nucleotides 130-645, 133-645, 136-645, and 139-645 of SEQ ID NO:22.
5. An isolated DNA capable of hybridizing to a DNA sequence of claim 1 under highly stringent conditions, wherein said isolated DNA encodes a CD30-L polypeptide capable of binding CD30.
6. An isolated DNA sequence encoding a CD30-L polypeptide capable of binding CD30, wherein said CD30-L comprises an amino acid sequence selected from the group consisting of amino acids x to 239 of SEQ ID NO:6, wherein x is 1-19, and amino acids y to 234 of SEQ ID NO:8, wherein y is 1-19.
7. An expression vector comprising a DNA sequence according to claim 1.
8. An expression vector comprising a DNA sequence according to claim 2.

9. An expression vector comprising a DNA sequence according to claim 3.
10. An expression vector comprising a DNA sequence according to claim 5.
11. A process for preparing a CD30-L polypeptide, comprising culturing a host cell transformed with a vector according to claim 7 under conditions promoting expression of CD30-L, and recovering the CD30-L polypeptide.
12. A process for preparing a CD30-L polypeptide, comprising culturing a host cell transformed with a vector according to claim 8 under conditions promoting expression of CD30-L and recovering the CD30-L polypeptide.
13. A process for preparing a soluble CD30-L/Fc fusion protein, comprising culturing a host cell transformed with a vector according to claim 9 under conditions promoting expression of CD30-L/Fc, and recovering the CD30-L/Fc polypeptide.
14. A process for preparing a CD30-L polypeptide, comprising culturing a host cell transformed with a vector according to claim 10 under conditions promoting expression of CD30-L, and recovering the CD30-L polypeptide.
15. A substantially homogeneous purified biologically active CD30-L protein, wherein said CD30-L is selected from the group consisting of murine CD30-L comprising the N-terminal amino acid sequence Met-Gln-Val-Gln-Pro-Gly-Ser-Val-Ala-Ser-Pro-Trp or Met-Glu-Pro-Gly-Leu-Gln-Gln-Ala-Gly-Ser-Cys-Gly, and human CD30-L comprising the N-terminal amino acid sequence Met-His-Val-Pro-Ala-Gly-Ser-Val-Ala-Ser-His-Leu or Met-Asp-Pro-Gly-Leu-Gln-Gln-Ala-Leu-Asn-Gly-Met.
16. A purified CD30-L according to claim 15, wherein said CD30-L comprises an amino acid sequence selected from the group consisting of amino acids 1-220 of SEQ ID NO:19, amino acids 1-215 of SEQ ID NO:23, amino acids 1-239 of SEQ ID NO:6, and amino acids 1-234 of SEQ ID NO:8.
17. A substantially homogeneous soluble CD30-L polypeptide, wherein said soluble CD30-L comprises an amino acid sequence selected from the group consisting of amino acids 49-220 of SEQ ID NO:19 and amino acids z-215 of SEQ ID NO:23, wherein z is selected from the group consisting of 44, 45, 46, and 47.

18. A substantially homogeneous purified CD30-L protein capable of binding CD30, wherein said CD30-L is encoded by a DNA sequence that will hybridize to the nucleotide sequence presented in SEQ ID NO:19 or SEQ ID NO:23 under severely stringent conditions.

19. A CD30-L protein according to claim 18, wherein said protein is a soluble human CD30-L protein.

20. Purified CD30-L according to claim 18, wherein said CD30-L comprises an amino acid sequence selected from the group consisting of amino acids x to 239 of SEQ ID NO:6, wherein x is 1-19, and amino acids y to 234 of SEQ ID NO:8, wherein y is 1-19.

21. A fusion protein comprising a soluble human CD30-L according to claim 19 and an Fc polypeptide derived from an antibody.

22. An antibody immunoreactive with a CD30-L polypeptide according to claim 18.

23. An antibody according to claim 22 wherein said antibody is a monoclonal antibody.

24. An isolated nucleic acid molecule comprising a sequence of at least about 14 nucleotides of the DNA sequence of SEQ ID NO:5 or SEQ ID NO:7, or the DNA or RNA complement thereof.

25. A conjugate comprising a diagnostic or therapeutic agent attached to a CD30-L polypeptide according to claim 18.

26. A conjugate comprising a diagnostic or therapeutic agent attached to a soluble CD30-L polypeptide according to claim 19.

27. A method of delivering a diagnostic or therapeutic agent to CD30<sup>+</sup> cells, comprising contacting said cells with a conjugate according to claim 25.

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28. A method of delivering a diagnostic or therapeutic agent to CD30<sup>+</sup> cells, comprising contacting said cells with a conjugate according to claim 26.

~~29. A method according to claim 28, wherein said cells are malignant and said conjugate is administered in an effective amount to a human afflicted with said malignant cells.~~

~~30. A method according to claim <sup>3</sup>29, wherein said cells are CD30<sup>+</sup> lymphoma cells.~~

31. A method of treating large cell anaplastic lymphoma (LCAL), comprising administering an effective amount of a soluble CD30-L according to claim 19 to a human afflicted with LCAL.

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